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09/803,941	03/13/2001	Koichi Ikeshima	WATK:210	9068

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EXAMINER	
DICUS, TAMRA	

ART UNIT	PAPER NUMBER
1774	20

DATE MAILED: 10/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/803,941	Applicant(s) IKESHIMA, KOICHI	
	Examiner Tamra L. Dicus	Art Unit 1774	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

The 102(b) rejection over Hamaguchi et al. is withdrawn due to Applicant's arguments. The 103(a) rejection over Kotani in view of Kumazawa is withdrawn due to Applicant's arguments.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The disclosure contains no description on how a slurry "is applied". Hence, one skilled in the art would not be appraised on how to make the invention. The Examiner takes the position that any slurry that is adhered to a ceramic body will create the claimed invention.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 - 2 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 0798 042 to Kumazawa et al.

'042 teaches a cordierite honeycomb body having excellent thermal shock

resistance by coating the surface (outer wall) exhibiting a higher thermal expansion coefficient than that of the inner carrier containing inner walls by coating with activated alumina (a raw material) on the outside wall where the thermal expansion coefficient of the outer coating on the body wall being larger than the thermal expansion coefficient of an inside partition wall at pg. 3, lines 51-58, pg. 5, lines 5-20, and Table 1. Page 4, lines 40-56 use the same slurry composition and process of applying the composition. '042 further teaches compressive stress is applied from the outer wall to the inside at page 4, lines 16-25.

5. Claims 1-2, and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by USPN 5,514,446 to Machida et al.

Machida teaches a ceramic honeycomb structural body having an outer portion and center portion comprising cells, where the inner portion of the ceramic honeycomb structural body contains a catalyst seal slurry of active alumina-ceria powders with aluminum nitride solution (see col. 6, lines 5-26) that is dried – sintered under 600 degrees C (fired). Since the materials and process used are the same, the characteristics of claim 1 would be expected to be the same absent any evidence to the contrary.

6. Regarding claim 2, Machida further teaches a honeycomb structure body where the outer wall portion of the structure and the structure can be the same material (see col. 3, line 44+, and Figures 1 and 2).

7. At col. 2, lines 38+, the incomplete cells have an area not more than 90% of an area of the complete cells meeting the limitations of claim 6.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 4-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,514,446 to Machida et al. in view of USPN 5,629,067 to Kotani.

Machida discloses the claimed invention except for the number of cell per unit area and wall thickness requirements. Kotani teaches a ceramic honeycomb structure body comprising cells (through-holes surrounded by partition walls) and an outer wall portion (see Fig. 5), where both the inner and outer walls are of cordierite having the same thermal expansion (see col. 7, lines 24-37). Kotani further teaches an outer coating formed on the outer surface of the body to reduce cells from cracking (see col. 2, lines 28-38). Kotani discloses the outer wall being thicker than the inner wall and the number of cells per unit area requirements of instant claims 4-5 in Example 1, Figures 4-5, and col. 6, lines 60+. It would be obvious to a person having ordinary skill in the art to modify the honeycomb structure taught by Machida to include the number of cell per unit area and wall thickness requirements for the purpose of alleviating thermal stresses which occur between the outer wall and the body, and to make the structure highly resistant to thermal shock.

Regarding instant claim 7, Machida does not teach the bulk density requirements. It is known in the art to vary the thickness of the cell walls because Kotani teaches the wall thickness

is varied to gain desired bulk density at col. 1, lines 25-34 and col. 2, lines 5-7 in order to reduce the heat capacity and effectively control exhaust emissions thereby improving the overall efficiency of a catalytic converter. It would be obvious to a person having ordinary skill in the art to modify the honeycomb structure taught by Machida to include the bulk density 0.26 g/cm^3 or less because Kotani teaches the wall thickness is varied to gain desired bulk density at col. 1, lines 25-34 and col. 2, lines 5-7 in order to reduce the heat capacity and effectively control exhaust emissions thereby improving the overall efficiency of a catalytic converter.

10. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,514,446 to Machida et al. in view of USPN 5,629,067 to Kotani and further in view of USPN 5,346,722 to Beauseigneur et al.

Machida in view of Kotani substantially disclose the claimed invention except for a partition wall thickness of less than 0.1 mm. Beauseigneur discloses several examples of honeycomb structures having a range of the numbers of cells per unit area values and typical wall thickness requirements of claims 3-5 in catalytic converter applications at col. 3, lines 50-60. It would be obvious to a person having ordinary skill in the art to modify the honeycomb structure taught by Machida and Kotani to include the desired requirements of Beauseigneur to produce a desired honeycomb structure that exhibits efficient extruder or flow rates.

11. Regarding claim 7, it is known in the art to vary the thickness of the cell walls to because Kotani teaches the variation of wall thickness to gain desired bulk density at col. 1, lines 25-34 and col. 2, lines 5-7 in order to reduce the heat capacity and effectively control exhaust emissions thereby improving the overall efficiency of a catalytic converter.

Response to Argument

13. Applicant's arguments filed 07-18-03 have been fully considered but they are not persuasive. Applicant purports that coating artisans know how to apply paint to a surface. While the Applicant points to this well-known fact, the Applicant does not teach how **he** does so. Per page 7, lines 10-19 of the disclosure of the instant application, the TEC is higher **when** a cordierite slurry is applied to the outside and fired. There is no mention of how it is applied, so the Examiner takes the position that the Applicant has failed to disclose the invention and the body being dipped and fired is the same and the TEC differential remains inherent-hence the motivation for the 112 1st paragraph rejection. Since the same materials and places of application are the same, one can only come to one conclusion, the TEC differential is present.

14. The declarant states that Kotani shows a TEC differential, however, provides no room of giving substantial stress to the inner from the outer portion/wall because of firing. However, as previously provided, that "stress is applied to the inside partition wall from the outer...wall" is a process limitation and is given little weight. The same structure is provided by the prior art, therefore, the same article is taught. Moreover, the TEC values of the instant application mirror the TEC values of Kotani, and provide the same outer wall versus inner wall TEC differential.

Applicant argues that Machida does not teach a TEC differential. The Examiner does not agree. Machida teaches the very same materials and process (see col. 6, line 28) as set forth by Applicant to produce a honeycomb structure which inherently produces the same TEC differential. The declaration provides the same conclusive evidence provided by Machida that the TEC is larger on the outside than inside. The declaration does not clearly set forth what the outside or inside walls are. Further what is the intermediate and how does it affect the total

body. Also, where is the catalyst in relationship to the body? It cannot be understood whether the catalyst is on the outside or the inside of the honeycomb structure and if Applicant is referring to the outside of the catalyst or the outer part of the catalyst. Take any portion A/B and the outer wall is still larger than the inner wall. That some A/B portions are sealed or not sealed with ceramic material is not even claimed in the instant invention and therefore is of no consequence. The Examiner does not agree with the declarant nor the Applicant's reasoning. The Applicant has not pervasively argued. In response to Machida not showing a TEC differential, because the Applicant purports there is no practical stress expected, as previously provided, that "stress is applied to the inside partition wall from the outer...wall" is a process limitation and is given little weight. As to the discontinuation of the B portions of Machida, such discussion is immaterial because the exact same material is adhered to the outer wall and the declaration proves the outer wall TEC values are larger than the inner portion. The instant claims do not address a discontinuation of any sort and is therefore not a limitation included and is outside the scope of Applicant's invention.

Applicant protests that in the either the EP '042 or US '899 to Kumazawa reference, there is no discussion that only teaches γ-alumina on the outside of the honeycomb body and as a washcoat. Applicant does not claim the alumina only on the outside. Moreover, the Kumazawa references teaches dipping the body in alumina (same as "applied" process by Applicant), applying stress the same way, and therefore, the alumina would adhere to the outside body and since Applicant has not provided a different way to apply the slurry, the statutory 102(b) rejection is upheld. According to the disclosure, since the slurry is applied and fired, the Examiner has provided a slurry applied by dipping via Kumazawa. It is further noted that the

body is fired. Would the firing the body result in the TEC being higher or only the application of the γ-alumina make the TEC higher? Since Applicant has refused to say how the alumina is applied, it is not clear as to how the TEC differential is higher or lower in what areas. Is the whole body fired and when it is, isn't the inside wall also fired? Applicant further argues volume shrinkage when heat is applied. This is irrelevant since the instant claim does not mention volume shrinkage at all. The fact that Applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Again, the Applicant and the declaration provides nothing to disprove the TEC differential is different from what is provided in the reference. The declaration actually proves Kumazawa teaches the catalyst has a larger TEC than the inner honeycomb body, the same as the instant invention. '446 teaches a catalyst such as active alumina (same as Applicant) is included in the sealing outer layer in **patented claim 5.** See also col. 4, lines 23-25 teaching applying stress. '042 teaches a cordierite honeycomb body having excellent thermal shock resistance by coating the surface (outer wall) exhibiting a higher thermal expansion coefficient than that of the inner carrier containing inner walls by coating with activated alumina (a raw material) on the outside wall where the thermal expansion coefficient of the outer coating on the body wall being larger than the thermal expansion coefficient of an inside partition wall at pg. 3, lines 51-58, pg. 5, lines 5-20, and Table 1. Page 4, lines 40-56 use the same slurry composition and process of applying the composition. '042 further teaches compressive stress is applied from the outer wall to the inside at page 4, lines 16-25. Regarding how the '042 Kumazawa reference uses the slurry as a washcoat is immaterial especially since Kumazawa teaches the slurry is not

removed. The fact that the reference uses the slurry for a different purpose is of no consequence. In response to Applicant's contentions that '042 Kumazawa does not teach alumina on the outside of the honeycomb body is not true. Kumazawa teaches the alumina is not removed, so it is present and so is the TEC differential. Further, the intentions of the catalyst maker is not germane. Kumazawa explicitly teaches the claimed invention as the record thoroughly explains.

13. Applicant urges Kotani and Kumazawa are not combinable. The Examiner disagrees. The fact that applicant has recognized another advantage (a three step process of Kotani) which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Kotani teaches an outer coating applied and fired (same as Applicant). That Applicant states "no additional stress will occur on the **already fired** inner portion of the honeycomb" is of no consequence because Applicant fires the same material also, thereby making the instant Applicant and Kotani reference the same. Moreover, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

15. Applicant further urges Machida and Kotani are not combinable as they fail to teach the TEC differential. Again, Machida and Kotani teach the same materials being applied to the same areas of a ceramic honeycomb body and no differences are seen.

Applicant concludes that Machida, Kotani, and Beauseigneur are not combinable as none teach the TEC differential in the direction of applied stress. Again, the Examiner disagrees,

motivation exists. Applicant alleges Beauseigneur does not teach the TEC differential. The Examiner disagrees. Beauseigneur teaches the exact same materials involved, a honeycomb structure and a alumina/catalytic coating on the outside and fired. The TEC differential is of course present as instant claim 1 describes, no other conclusion could be provided. How a material is measured in a direction of the diameter does not weigh heavily also because patentability resides in the product and not mere properties that are naturally present especially when the same materials are provided. The same materials are applied to the same areas of a ceramic honeycomb body and no differences are seen. Moreover, the declaration does not include evidence to disprove the teachings of Beauseigneur. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Instant claim 7 cannot be found allowable because it depends from claim 1, which is not found allowable.

Conclusively, as explicitly explained, the same material, alumina, is adhered in the same manner, the body being dipped-applied to the outside wall, and hence a higher TEC on the outside than the inside is taught. Kumazawa, Hamaguchi, and Machida teach the claimed invention. All teach a raw material, as in the disclosure, of corderite and/or alumina. Applicant has not persuasively argued.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tamra L. Dicus whose telephone number is (703) 305-3809. The examiner can normally be reached on Monday-Friday, 7:00-4:30 p.m., alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached on (703) 308-0449. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Tamra L. Dicus
Examiner
Art Unit 1774

October 8, 2003

CYNTHIA H. KELLY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700